

Application Serial No.: 10/600,434  
Reply to Office Action dated July 6, 2005

### REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-14 are presently active in this case, Claims 11-14 having been added by way of the present Amendment.

The amendments set forth herein do not add any new matter to the application, as these claims are fully supported by the figures and corresponding description in the original specification.

The Applicant wants to thank Examiner Ly Tran and Primary Examiner Shah Manish for the courtesies extended to Applicant's representative, Christopher Ward, during the personal interview conducted on September 22, 2005.

In the outstanding Official Action, Claims 1 and 2 were rejected under 35 U.S.C. 102(b) as being anticipated by Sato et al. (JP 4-70350). Claims 3 and 4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. in view of Nozawa (U.S. Patent No. 5,128,690). Claims 5-10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. in view of Nozawa and further in view of Shindo (U.S. Patent No. 6,786,566). For the reasons discussed below, the Applicant requests the withdrawal of the art rejections.

In the Office Action, the Sato et al. reference is indicated as anticipating each of Claims 1 and 2. However, the Applicant notes that a claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). As will be demonstrated below, the Sato et al. reference clearly does

not meet each and every limitation of the amended independent Claims 1 and 2.

Claim 1 of the present application advantageously recites a maintenance method for an ink jet head which ejects ink supplied from an ink control tank via an ink supply path. The method comprises, among other features, controlling the pressure in the ink control tank ... as a purging operation of ink carried out to remove particles of dirt in the ink *and then maintain the pressure applied to the ink surface of each orifice approximately to the atmospheric pressure such that the surface of the ink is not set back from said orifice plate toward said ink supply path after the purging operation*. Claim 2 recites a maintenance apparatus comprising, among other features, a pressure control section which controls the pressure in said ink control tank ... as a purging operation of ink carried out to remove particles of dirt in the ink *and then maintain the pressure applied to the ink surface of each orifice approximately to the atmospheric pressure such that the surface of the ink is not set back from said orifice plate toward said ink supply path after the purging operation*. The Applicant submits that the Sato et al. reference does not disclose all of the limitations set forth above in Claims 1 and 2.

By way of illustration and not limitation, the present application describes an embodiment (see Figure 1) that includes a pressure control section (8) that is used to control air pressure of an air layer in an ink control tank (5). When the air pressure of the air layer is increased, this pressure is applied to a common ink chamber (1a) of an ink jet head (1) via an ink supply path (6). (See page 6, lines 18-24.) Since the ink control tank (5) is directly connected to the ink jet head (1) via the ink supply path (6), the pressure control section (8) can control the pressure within the tank and within the head both during and after a purging

operation in order to prevent dirt particles in the ink from being pulled into the ink supply path. The control of pressure is intended to prevent dirt particles that remain on the head after the purging operation from returning to the ink supply path. Dirt particles, such as paper dust which has been released from printing paper, often stick to the surface of the orifice plates, and are mixed into the ink remaining in the vicinity of each orifice and on a surface of the orifice plate surrounding each orifice after the purging operation. If pressure applied to the ink surface of each orifice from the ink control tank side is not maintained approximately to the atmospheric pressure and is lowered, it is likely that the dirt particles will be pulled into the ink supply path together with the remaining ink. The present invention avoids such a problem.

As discussed and agreed during the personal interview, the English language translation of the Abstract and the figures of the Sato et al. reference do not disclose a method or apparatus that controls pressure in an ink control tank during a purging operation *and the maintains pressure* applied to an ink surface of each orifice approximately to an atmospheric pressure such that the surface of the ink is not set back from the orifice plate toward the ink supply path *after the purging operation*. During the interview, it was agreed that the Examiners would obtain an English translation of the entire Sato et al. reference so that a full analysis of this document can be made. The Applicant respectfully requests a copy of the translation. The below analysis is based upon the English translation of the abstract and the figures currently of record.

Figure 2 of the Sato et al. reference depicts a configuration in which pressure is applied to the head (1) by a pressurizing pump (28) when the head (1) is capped by a cap (4).

Please note that the pump (28) is part of the cap structure, and not part of the head structure, and therefore the pump (28) can only provide pressure to the head (1) when the cap (4) is engaged to the head (1) in a sealed manner. The head (1) is capped by the cap (4) during the waste discharge stage discussed in the abstract. But once such a purge is completed, then the cap (4) is presumably removed and the pressurizing pump (28) is no longer able to pressurize the head (1), since the pump (28) is provided as part of the cap structure and not part of the head structure.

Thus, the Applicant submits that the Sato et al. reference does not disclose all of the limitations recited in Claims 1 and 2 of the present application, and the Applicant respectfully requests the withdrawal of the anticipation rejection of Claims 1 and 2.

Claims 3-5 and 7 are considered allowable for the reasons advanced for Claims 1 and 2 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed nor suggested by the applied references when those features are considered within the context of Claims 1 and 2.

Regarding the obviousness rejections of independent Claims 6 and 8, the Applicant notes that the basic requirements for establishing a *prima facie* case of obviousness as set forth in MPEP 2143 include (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the reference (or references when combined) must teach or suggest all of the claim limitations. The Applicant submits that a *prima facie* case of

obviousness has not been established in the present case because the cited references, either when taken singularly or in combination, do not teach or suggest all of the claim limitations.

Claim 6 of the present application advantageously recites a maintenance apparatus for an ink jet head which ejects ink supplied from an ink control tank via an ink supply path. The apparatus comprises, among other features, a pressure control section which controls the pressure in said ink supply path ... as a purging operation of ink carried out to remove particles of dirt in the ink *and then maintain the pressure applied to the ink surface of each orifice approximately to the atmospheric pressure such that the surface of the ink is not set back from said orifice plate toward said ink supply path after the purging operation*. Claim 8 recites a maintenance method comprising, among other features, controlling the pressure in the ink supply path ... as a purging operation of ink carried out to remove particles of dirt in the ink *and then maintain the pressure applied to the ink surface of each orifice approximately to the atmospheric pressure such that the surface of the ink is not set back from said orifice plate toward said ink supply path after the purging operation*.

For the reasons discussed above with respect to Claims 1 and 2, the Applicant submits that the Sato et al. reference does not disclose the above limitations of Claims 6 and 8.

Additionally, the Applicant submits that the Shindo reference does not supplement the deficiencies noted above with respect to the teachings of the Sato et al. reference. The Shindo reference is cited for a particular suction pressure. However, the Shindo reference does not disclose or even suggest a method or apparatus that controls pressure in an ink supply path during a purging operation *and the maintains pressure* applied to an ink surface of each orifice approximately to an atmospheric pressure such that the surface of the ink is

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not set back from the orifice plate toward the ink supply path *after the purging operation*, as recited in Claims 6 and 8.

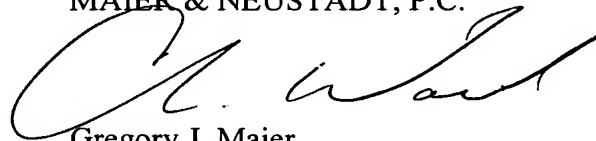
Thus, the Applicant submits that the Sato et al. reference and the Shindo reference do not disclose, either singularly or in combination, all of the limitations recited in Claims 6 and 8 of the present application. Accordingly, the Applicant respectfully requests the withdrawal of the obviousness rejection of Claims 6 and 8.

Claims 9 and 10 are considered allowable for the reasons advanced for Claims 8 and 6, respectively, from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed nor suggested by the applied references when those features are considered within the context of Claims 6 and 8.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully Submitted,

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